

Changkat Changi Secondary School
Physics Department
Secondary 3 Express

Name: _____ () Class: _____ Date: _____

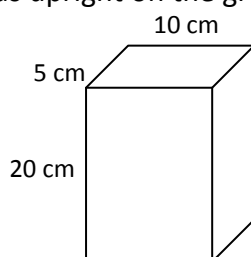
TOPIC : FORCES & PRESSURE (Unit 3 / Textbook Page 46 – 67)

WORKSHEET 3B.4

10

A. MULTIPLE CHOICE QUESTIONS [5 marks]

1. A brick of weight 80 N stands upright on the ground as shown below. What is the pressure it exerts on the ground?



A $\frac{80}{20 \times 10} \text{ N/cm}^2$

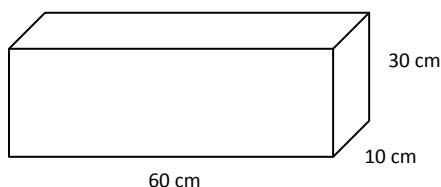
B $\frac{20 \times 10}{80} \text{ N/cm}^2$

C $\frac{80}{5 \times 10} \text{ N/cm}^2$

D $\frac{10 \times 5}{80} \text{ N/cm}^2$

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2. A brick, of mass 6 kg, has dimensions of 60 cm by 30 cm by 10 cm. What is the greatest pressure exerted by this brick, when it is resting on one of the faces?



A 200 Pa

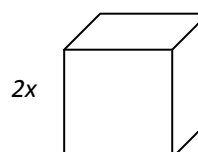
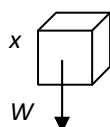
B 333 Pa

C 1000 Pa

D 2000 Pa

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3. Two cubes are made from the same material. One cube has sides that are twice as long as the other. Standing on one face, the smaller cube exerts a pressure $p = \frac{W}{a}$, where a is the area of a face. What is the pressure exerted by the larger cube standing on one of the faces?



A $2p$

B $4p$

C $8p$

D $16p$

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4. Which one of the following would be **least likely** to sink into soft ground?

- A A loaded lorry with four wheels
- B A loaded lorry with six wheels
- C An empty lorry with four wheels
- D An empty lorry with six wheels

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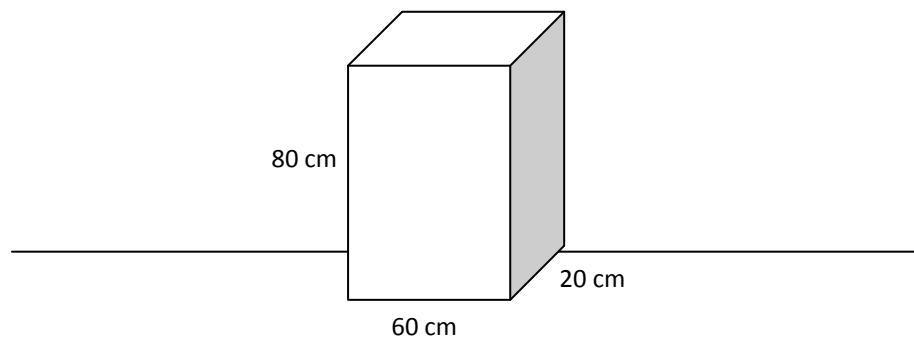
5. Which one of the following is another way of representing pascal (Pa)?

- A Nm
- B Nm^2
- C Nm^{-1}
- D Nm^{-2}

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B. STRUCTURED QUESTIONS [5 marks]

6. A concrete slab of dimensions 80 cm by 60 cm by 20 cm, has a mass of 200 kg. It is lying on the ground as shown below.



a. What is the pressure exerted by the concrete slab on the ground?

[2]

b. The ground can take a pressure 1.0×10^5 Pa before it collapses. What is the maximum number of concrete slabs that can be stacked on top of each other, in the above orientation, before the ground collapses?

[1]

c. Can you think of a way, that will allow us to stack more concrete slabs on top of each other? How many slabs can be stacked?

[2]